REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow. Claims 11, 16 and 23 have been amended. New claim 24 has been added. After amending the claims as set forth above, claims 1-24 are now pending in this application.

Claim amendments

Claim 11 has been amended to correct a clerical error, and as such, the amendment does not narrow claim 11. Claims 16 and 23 have been amended to put these claims in better form for U.S. Practice. The amendments to claims 16 and 23 actually broaden these claims.

Allowable subject matter

Applicants appreciate the indication that claims 5, 22 and 23 include allowable subject matter. Applicants have not amended claims 5, 22 and 23 to be in independent form at this time, because, for the reasons given below, applicants submit that independent claims 1 and 20, from which claims 5, 22 and 23 depend, are allowable.

Title

The title was characterized as not being descriptive. The title has been replaced with the title suggested by the Examiner.

Abstract

The abstract was objected to "because it uses language that can be implied." Applicants have amended the abstract to delete the language "is disclosed", and "is furthermore disclosed", and respectfully submit the objection has been overcome.

Drawings

The drawings were objected to for using the reference character "79" to designate all of "object", "non-transparent object", "biological object" and "transparent objects". Applicants have amended the specification to delete the reference character "79" with reference to "non-transparent object", "biological object" and "transparent

objects". Accordingly, applicants submit that the objection to the drawings has been overcome.

Rejections under 35 U.S.C. § 112, second paragraph

Claim 16 stands rejected under 35 U.S.C. § 112, second paragraph. Claim 16 has been amended to replace "consisting essentially" with "is an element selected from the group consisting" to put that claim in better form for U.S. practice. The amendment to claim 16 broadens that claim. Applicants also submit that the amendment overcomes the rejection under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. § 102

Claims 1-4, 6-18, 20 and 21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,097,870 to Ranka et al. (hereafter "Ranka"). Insofar as these rejections pertain to the claims as amended, applicants respectfully traverse.

Independent claims 9 and 20 include a first optical means or an optical means "for shaping the spectrally broadened light into an illumination beam", where the spectrally broadened light is broadened by a microstructured optical element. While claims 9 and 20 are not limited to only those examples in the specification, the present specification discloses a lens 33 which collimates broadened light (see p. 10, lines 24-26) as an example of an optical means for shaping the broadened light beam. Independent method claim 1, in a corresponding fashion to claims 9 and 20, recites "shaping the spectrally broadened light to form an illumination beam." While Ranka discloses a microstructured fiber that spectrally broadens light, Ranka does not disclose that the spectrally broadened light is shaped to form an illumination beam.

Ranka discloses in Figure 9 a vis-nir light generator 90. The light generator includes an optical pump source 92, which may be a laser, coupled to a microstructured fiber (MSF) 96 (col. 6, lines 43-53). The MSF emits a broad continuum of light (col. 6, lines 60-65). The light generator 90 may function as a laser by including fiber gratings 96.1 and 96.2 at the opposing ends of the MSF, where the second grating 96.2 is partially transmissive at the lasing wavelength to allow light at the lasing wavelength to pass (col. 7, lines 39-51).

The second grating 96.2 of Ranka, however, does not shape into an illumination beam the broadened spectrum from the MSF 96. The function of the grating 96.2 is to act as a partially transmissive optical filter so that light at the lasing wavelength of the MSF 96 is partially transmitted. Thus, the grating 96.2 may affect the spectrum of the light received from the MSF 96. The purpose and function of the grating 96.2, however, is not to shape the light from the MSF. Thus, Ranka, in contrast to independent claims 1, 9 and 20, does not disclose that the spectrally broadened light is shaped to form an illumination beam.

For at least the reasons given above, applicants submit that Ranka does not anticipate any of independent claims 1, 9 and 20, or the remaining dependent claims which depend therefrom.

The dependent claims are allowable for the reasons given above with respect to independent claims 1, 9 and 20. The dependent claims are also allowable for reciting further features not disclosed by Ranka. For example, with respect to claims 3 and 10, Ranka does not disclose a means for, or method of, adjusting the power of the spectrally broadened light. The Office Action cites to col. 7, lines 7-10 of Ranka as disclosing this feature. This cited section of Ranka, however, discloses only that pump power or pump wavelength can be changed. Thus, Ranka at best discloses that the power or wavelength of light entering the MSF can be changed, not that the power of the broadened light coming from the MSF is adjusted.

With respect to claim 4, Ranka does not suggest adjusting the spectral composition of the beam. The cited section of col. 7, lines 18-28 describes the MSF as emitting light of different colors, where the color seen changes with the distance from the pump. This section does not disclose adjusting the spectral composition of the broadened beam.

New claim 24

New claim 24 has been added. New claim 24 is based on original claim 9, and has additional limitations in the alternative from original claims 10 and 4, respectively.

Thus, new claim 24 is patentable over Ranka for at least the reasons given above with respect to claims 9, 10 and 4.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date September 25, 2002 By Thomas G. Bilodeau

FOLEY & LARDNER
Washington Harbour
3000 K Street, N.W., Suite 500
Washington, D.C. 20007-5143
Telephone: (202) 672-5300
Facsimile: (202) 672-5399

Thomas G. Bilodeau
Attorney for Applicant
Registration No. 43,438

Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 19-0741 for any such fees; and applicant(s) hereby petition for any needed extension of time.

MARKED UP VERSION SHOWING CHANGES MADE

Below are the marked up replacement paragraph(s):

Fig. 3 represents, as an example, the use of an instrument according to the invention in a confocal scanning microscope 69. The illumination light beam 29 coming from the illuminating instrument 7 is reflected by a beam splitter 71 to the scanning module 73, which contains a cardan-suspended scanning mirror 75 that guides the light beam 29 through the microscope lens 77 and over or through the object 79. In the case of non-transparent objects [79], the illumination light beam 29 is guided over the object surface. In the case of biological objects [79] or transparent objects [79], the illumination light beam 29 can also be guided through the object 79. This means that various focal planes of the object 79 are illuminated successively by the illumination light beam 29, and are hence scanned.

Below are the marked up amended claim(s):

11. (Once Amended) Illuminating instrument according to Claim 9, further comprising an instrument for varying the power of a portion of at least one wavelength of the [of the] spectrally broadened light.

16. (Once Amended) Illuminating instrument according to Claim 9, wherein the microstructured optical element [consists essentially] <u>is an element selected from the group consisting</u> of adjacent glass, plastic material, cavities, cannulas, webs, honeycombs [or] <u>and</u> tubes.

23. (Once Amended) Device according to Claim 21, wherein the device [consists essentially] <u>is a device selected from the group consisting</u> of a confocal scanning microscope, a flow cytometer, an endoscope, a chromatograph [or] <u>and</u> a lithography instrument.

MARKED UP VERSION SHOWING CHANGES MADE

ABSTRACT OF THE DISCLOSURE

A method for illuminating an object (79). [is disclosed, which] The method is characterized by the steps of injecting (1) the light beam (13) from a laser (9) into a microstructured optical element (19), which spectrally broadens the light of the light beam (13), shaping (3) the spectrally broadened light (31) to form an illumination light beam (29), and directing (5) the illumination light beam (29) onto the object (79). An instrument (7) for illuminating an object (79). [is furthermore disclosed, which] The instrument comprises a laser (9) that emits a light beam (13), which is directed onto a microstructured optical element (19) that spectrally broadens the light from the laser. A optical means (33) which shapes the spectrally broadened light (31) to form an illumination light beam (29) is arranged downstream of the microstructured optical element (19).